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ABSTRACT

This issue of Exploratorium Magazine is devoted to languages as a systematic means of getting across ideas. Contents include: (1) "Where Do Languages Come From" (Merrit Ruhlen); (2) "English in Transition" (Rupert Peene); (3) "The Making of English" (Judith Brand); (4) "Try This!"-Become a Word Historian and One Poem-Three Poems" (Kurt Feichtmeir); (5) "Fragments" (Kurt Feichtmeir); (6) "When Languages Collide" (Ruth Brown); and (7) "Try This!"-Which Languages are Related?" (Judith Brand). Includes a Language Families of the World chart. (YDS)

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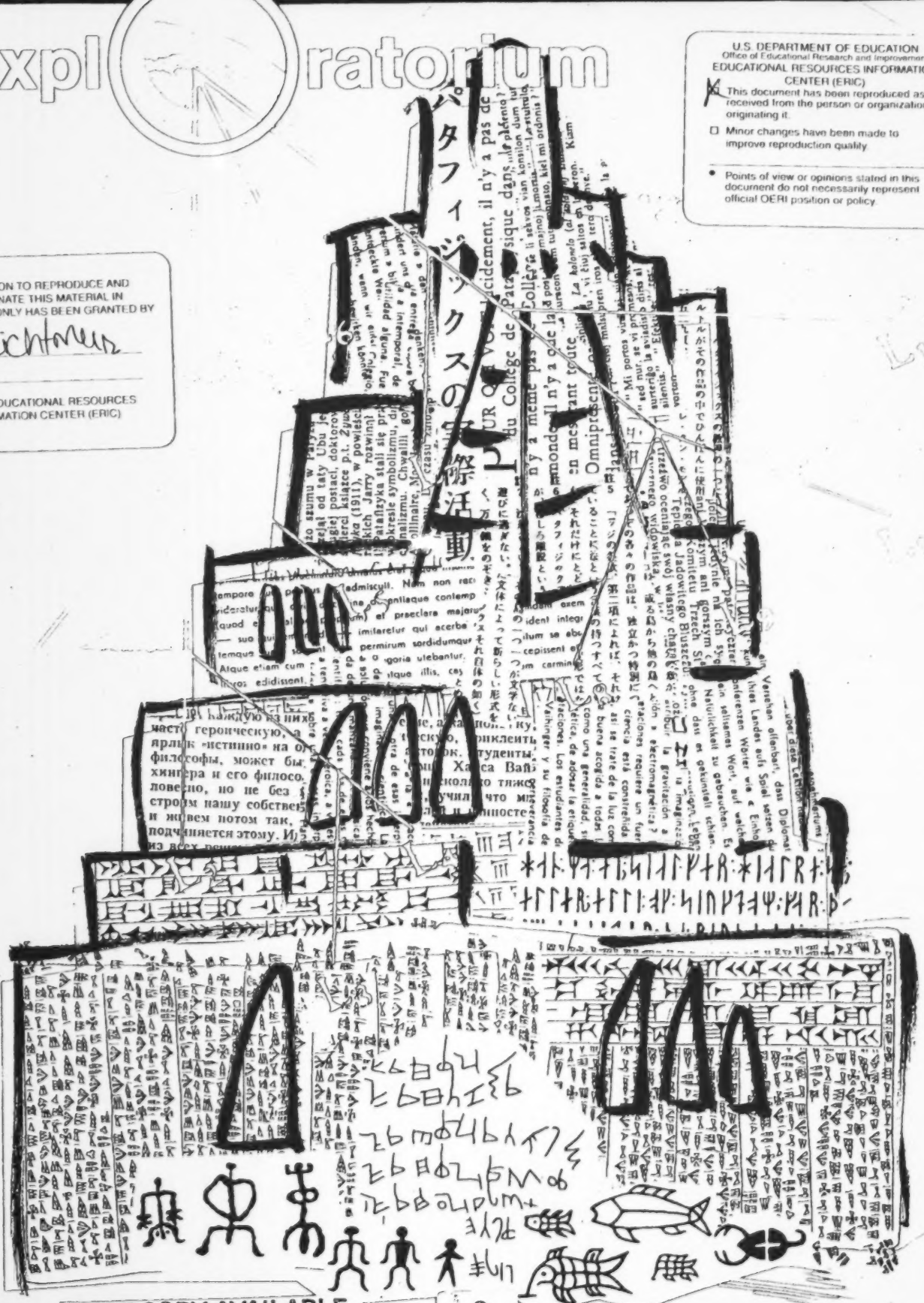

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Vol. 23, No. 1, Spring 1999

The Exploratorium Magazine is produced by the Exploratorium, the museum of science, art, and human perception. The magazine communicates ideas that exhibits can't easily demonstrate, extending the museum beyond its physical walls. Each issue takes an in-depth look at a single topic, explaining the underlying science of the everyday world.

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From the Director

Dear Friends,

For thousands of years, people have used language as a systematic means of getting across ideas. In this issue of our magazine, we explore this form of communication through fascinating articles and a beautiful *Language Families of the World* chart.

From the very first days of the Exploratorium, we have tried to communicate ideas about the world in many different ways. Our exhibits communicate concepts in an interactive, hands-on way that offers an Exploratorium visitor the opportunity to learn by doing. But not everyone is able to come to the museum for a visit. To reach a more global audience, we created many exciting books and other publications and developed an award-winning Web site (www.exploratorium.edu). These efforts have been quite successful.

This year we are expanding our outreach with a program that leases some of our exhibits to partner institutions—both new and established— around the globe. A partner institution can lease exhibits that are clustered thematically, and get Exploratorium training for its staff as part of the program. In this way, we can share the benefits of the Exploratorium's expertise in using exhibits to facilitate exploration and learning by students, teachers, and the general public.

The first in a revolving collection of Exploratorium exhibits can be seen at the new Explor@dome science center in Paris, which opened on March 31, 1999. Explor@dome is a 6,000-square-foot science center located in a canvas-roofed dome in the Jardin d'Acclimatation, a park dedicated to youth.

The Exploratorium collection, which covers topics such as weather and turbulence, mathematics and motion, and illusions and seeing, will remain at the Explor@dome for eighteen months.

We are very excited about this new program, extending the Exploratorium's unique way of communicating the connections between science and the everyday world. Everywhere we go, we find that for curious people, science is a universal language.

Yours,

Goéry Delacôte
Executive Director

BE CAREFUL! The experiments in this publication were designed with safety and success in mind. But even the simplest activity or the most common materials can be harmful when mishandled or misused. Use common sense whenever you're exploring or experimenting.

The Evolution of Languages

Exploratorium Magazine
Spring 1999

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by Merritt Ruhlen

There are over five thousand living languages in the world today. Some experts believe that they all derive from a common source.

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In Transition

by Rupert Peene

From humble beginnings in a lowland bog, English is now a global interlanguage.

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The Making of English

by Judith Brand

An overview of the history of our language, from its earliest origins to the threshold of the new millennium.

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Try This!

by Kurt Feichtmeir

Become a Word Historian

Knowing a word's history can enrich your understanding of its meaning.

One Poem – Three Poems

The nuances of words are revealed in these poetic translations.

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When Languages Collide

by Ruth Brown

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Try This!

by Judith Brand

Which Languages Are Related?

Decide which languages belong to a common family.

Special Insert

Two hundred of the most widely spoken languages appear on the Language Families of the World *chart, which groups languages into families and superfamilies and shows their historical distributions. Locate the languages you speak, and discover their linguistic relatives.*

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WHERE DO LANGUAGES COME FROM?

BY MERRITT RUHLEN

5

WE DON'T ASK OURSELVES where languages come from because they just seem to be there: French in France, English in England, Chinese in China, Japanese in Japan, and so forth. Yet if we go back only a few thousand years, none of these languages were spoken in their respective countries and indeed none of these languages existed anywhere in the world. Where did they all come from?

In some cases, the answer is clear and well-known. We know that Spanish is simply a later version of the Latin language that was spoken in Rome two thousand years ago. Latin spread with the Roman conquest of Europe and, following the breakup of the Roman empire, the regional dialects of Latin gradually evolved into the modern Romance languages: Sardinian, Rumanian, Italian, French, Catalan, Spanish, and Portuguese. A *language family*, such as the Romance family, is a group of languages that have all evolved from a single earlier language, in this case Latin.

But while the Romance family illustrates well the concept of a language family, it is also highly unusual in that the ancestral language—Latin—was a written language that has left us copious records. The usual situation is that the ancestral language was *not* a written language and the only evidence we have are its modern descendants. Yet even without written records, it is not difficult to distinguish language families, as can be seen in Table 1. Here similarities among certain languages in the word for "hand" allow us to readily identify not only the Romance family (Spanish, Italian, Rumanian), but also the Slavic family (Russian, Polish, Serbo-Croatian) and the Germanic family (English, Danish, German). There are, however, no written records of the languages ancestral to the Germanic or Slavic languages, so these two languages—which must have existed no less than Latin—are called Proto-Germanic and Proto-Slavic, respectively.

Table 1.
A Simple Example of Language Similarities

Language	"Hand"
English	hænd
Danish	haand
German	hant
Russian	ruka
Polish	rẽka
Serbo-Croatian	ruka
Spanish	mano
Italian	mano
Rumanian	mînə

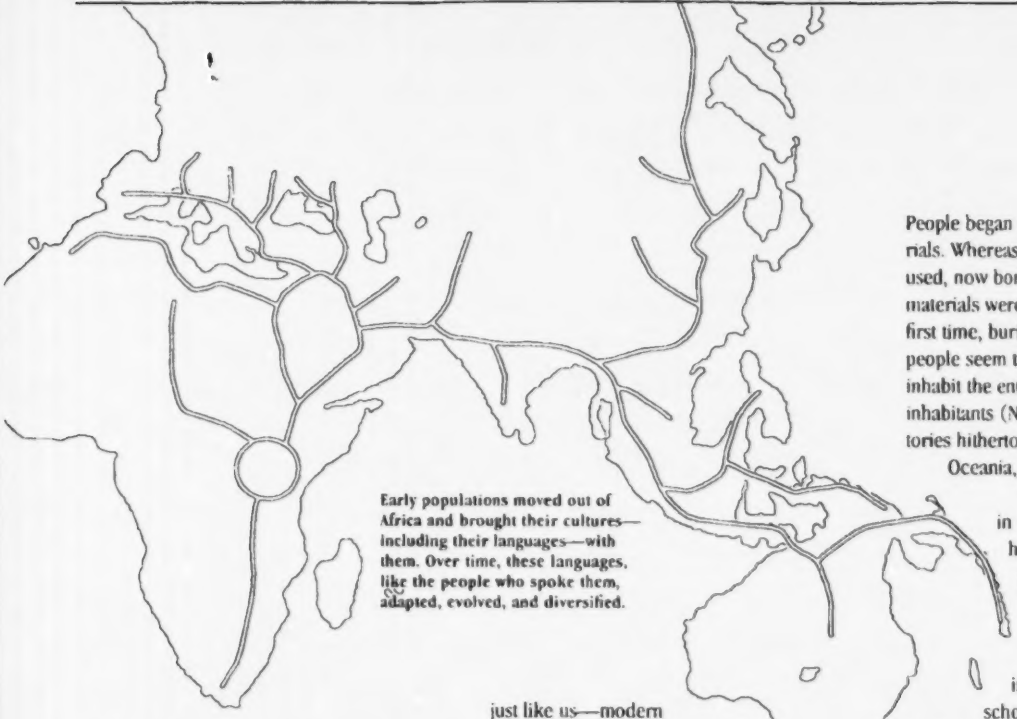
The words in the second column are written in the International Phonetic Alphabet.

If we examine words other than "hand," we find many additional instances where each of these three families is characterized by different-looking roots, just as in the case of "hand." But we also find, from time to time, roots that seem to be shared by these three families; that is, the same root is found in all three families. What is the meaning of such roots? In fact, similarities among language families such as Romance, Germanic, and Slavic have the same meaning as similarities among languages in any one family—they imply that these three families are branches of an even more ancient family. In other words, a language that existed long before Latin, Proto-Germanic, or Proto-Slavic first differentiated into these three languages and then they, in turn, diversified into the modern languages of each family. This larger, more ancient family is known as the Indo-European family and it includes almost all European languages (but not Basque, Hungarian, or Finnish), and many other languages of Iran, Afghanistan, Pakistan, and India. The *Language Families of the World* chart shows that the Indo-European family has, in fact, thirteen branches; in addition to Romance, Germanic, and Slavic, there are also Baltic, Celtic, Iranian, Indic, Tocharian, Anatolian, and three single languages that are by themselves separate branches of the family: Armenian, Greek, and Albanian.

The thirteen branches of Indo-European are connected to one another by numerous words and grammatical endings. One example is the word for "mouse," which exhibits striking similarities among languages from different branches of the family: Greek muus, Latin muus, Old English muus, Russian mish', and Sanskrit (Indic) muuṣ-. Not surprisingly, scholars believe that the original Proto-Indo-European word was *muus- (the * indicates a hypothetical reconstructed form, rather than an actually attested written form). Another root shared by different branches is the word for "nose": Latin naas-, Old English nosu, Lithuanian (Baltic) nos-, Russian nos, and Sanskrit naas-. All of these words are thought to have evolved from Proto-Indo-European *naas-. The precise time and place that Proto-Indo-European was spoken remains a matter of some dispute even today. The two most popular hypotheses postulate it was spoken in the Ukraine around six thousand years ago, or Anatolia (modern Turkey) around eight thousand years ago.

The story does not end here for, as the *Language Families of the World* chart shows, Indo-European is but one branch of an even larger (and more ancient) family known as Eurasiatic. In addition to Indo-European, this family also includes the Uralic family (Finnish, Hungarian, Samoyed); the Altaic family (Turkic, Mongolian, Tungus, Korean, Japanese); the Chukchi-Kamchatkan family just across the Bering Strait from Alaska; and the Eskimo-Aleut family that extends along the northern perimeter of North America from Alaska to Greenland. One of the words found in all five branches has a general meaning of "tongue, speak" or "call": Proto-Indo-European *gal "call," Proto-Uralic *keele "tongue," Proto-Altaic *k'äälä "tongue, speak," Kamchadal (Chukchi-Kamchatkan) kel "shout," Proto-Eskimo *kələɣ- "inform." The Eurasiatic family is also characterized by distinctive first- and second-person pronouns, the first based on *M*, the second on *T*. Within the Indo-European family, almost every language exhibits such forms: English *me* and *thee*, Spanish *me* and *te*, Russian *menya* and *tebya*, and so forth. This pattern is, however, characteristic of the entire Eurasiatic family, not just the Indo-European branch. In other parts of the world, different pronominal systems are found. For example, in the Amerind family, which includes most Native American languages, the most common pattern is first-person *N* and second-person *M*.

If we apply this method of classification to languages elsewhere in the world, we can, in similar fashion, distinguish other large and ancient families comparable to Eurasiatic. These are the twelve families shown on the *Language Families of the World* chart, though Kartvelian and Dravidian are really lower-level



Early populations moved out of Africa and brought their cultures—including their languages—with them. Over time, these languages, like the people who spoke them, adapted, evolved, and diversified.

families whose precise classification is unresolved. Russian linguists would include both in the Eurasiatic family, but Joseph Greenberg, a Stanford University linguist whose work is the basis for the *Language Families of the World* chart, considers them related to Eurasiatic, but not a part of it.

Even among these dozen families, there are certain distinctive roots indicating that all twelve of these families have evolved from a single earlier language. Two of the most widespread roots are TIK 'finger, one' and PAL 'two.' Both of these roots are extremely common around the world. Table 2 provides just one example of each from the world's major geographical areas, but many additional examples could be cited.

If the preceding scenario is correct—and it must be admitted that most historical linguists are today quite skeptical—then all modern languages have evolved from a single earlier language. But where was this language spoken? And when? On these questions the linguistic evidence is mute.

There is, however, indirect circumstantial evidence from other areas of science that may provide an answer to these two questions. Both the archaeological record (in terms of bones and artifacts) and human genes (in terms of gene frequencies and mitochondrial DNA) indicate that all modern humans share a recent common ancestry in Africa. What is surprising, and difficult to explain, is that people who look just like us—modern humans—first appear in the archaeological record one hundred thousand years ago. But these people did not behave like us; they are indistinguishable from Neanderthals in both their toolkit and their behavior. It was only around fifty thousand years ago that—quite suddenly—both toolkits and behavior started to change with amazing rapidity. Toolkits that had remained unchanged over hundreds of thousands of years began to change with the rapidity of tennis-shoe styles today. And styles that had been uniform over huge geographical distances began to differentiate in neighboring villages.

People began to fashion tools from other materials. Whereas previously only stone had been used, now bone, shells, ivory, and other natural materials were employed. Art appeared for the first time, burials became more complex, and people seem to have spread out of Africa to inhabit the entire world, replacing earlier inhabitants (Neanderthals) or occupying territories hitherto uninhabited, such as Australia, Oceania, and the Americas.

We arrive at the final question in our story. What advantage could have allowed a small African population to leave Africa fairly recently and, in a short time, occupy the entire world and replace all previous human inhabitants? A growing number of scholars—linguists, archaeologists, and geneticists—believe that it was the appearance of fully modern human language around fifty thousand years ago that bestowed this enormous selective advantage on a small African population. If this scenario is correct, then the similarities among the world's extant languages not only support the idea of a recent African origin for all modern humans, they also explain it. The invention of modern human language fifty thousand years ago led to the explosive expansion of modern humans around the globe. And even today traces of this sudden expansion persist in languages around the world. ●

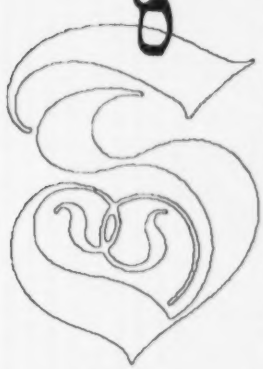
Table 2. Some Global Roots of the Words "One" and "Two"

Location	Language	Tik (one)	Pal (two)
Africa	Proto-Afro-Asiatic	*tak	
	Nimbari		bala
Europe	Zyrian	ōtik	
	Votyak		pal (half)
Asia	Proto-Sino-Tibetan	*tyik	
	Jeh		bal
Oceania	Proto-Karonan	*dik	
	Proto-Australian		*-pal
North America	Eyak	tikhi	
	Wintun		palo-
South America	Aguaruna	tikiʃi	
	Colorado		palu

All root words are spelled in the International Phonetic Alphabet.

English in Transition

by Rupert Peene



AINT JOHN tells us that "In the beginning was the Word." But when was the beginning, and what was the word? For St. John the word was *theos*, the Greek for "god." Later, for St. Jerome, who translated the Old Testament out of the suspiciously foreign Greek into the more comfortable Latin, the word was *deus*. Still later, for a rough bunch of Angles and Saxons who had recently invaded a large (and already occupied) island a few days' sail from Jutland, the word was *godas* or *gutha*, or possibly even *guda*.

And it was there and then, Britain in the sixth century, so scholars tell us, that we have the beginning. Not the beginning of the world, which is what St. John had in mind, but the beginning of English, or maybe the beginning of the world as English speakers tend to see things.

There was no defining moment when the English language began—when some Angle, or Saxon, or Jute slogging through the fragrant mud along the banks of the Thames remarked in wonder, "My *got* (or *godh*, or *guth*), I'm speaking *English* (or *Englisc*)!" If there was such a moment, it is lost to us.

Could the speakers of Old English have foreseen that their language would evolve into Middle English? Could Chaucer have anticipated, gently laying his poetic ear against the body linguistic, the grumbling borborygmus of the great vowel movement of the sixteenth century? This shift is the reason why the pronunciation of English vowels is so unlike that of its continental relatives. Spelling was more or less fixed by the time of the shift, and, as a result, vowel symbols in modern English still represent the old sounds.

Can we predict where English may meander in the next few centuries? Well, about as accurately as we can predict the weather. Both language and weather are complex phenomena. We recognize patterns of change, but the evolution of these patterns is only foreseeable in the short run.

Lately, it appears that some colonial versions of English may be evolving into the so-called New Englishes. With the rise of nationalism in places like Jamaica, Sierra Leone, Singapore, and India, this process may be accelerated. People for whom colonial English is a first language may understandably want to make that language their own. Such new versions of English could become as distinct from each other as are modern German, Dutch, and Danish.

Some authorities conjecture that, like Latin, English could gradually separate into various "nation languages," but that a kind of public English will remain as a global *lingua franca* that is similar to the way Classical Latin was used. Classical Latin, the high-register Latin of literature and rhetoric was one thing, but the Latin of everyday conversation was another. Cicero may have written or spoken publicly the word *domus* (Classical Latin for "house," which still exists in Italian as *duomo* or "cathedral," a very grand house indeed), but he more likely said *casa* when addressing his cook.

There is a kind of public speech that can be enjoyed daily on the television or radio news. For example, no matter how often the *perpetrator* may *exit* the *premises*, the *bad guy* almost never *runs away*. It is interesting to note that it is the same Latin that is poking up its imperial head through our everyday English.

In order to see how English has changed over time, we need to consult a text that has endured down the centuries. In most cultures, such sources are religious texts. For example, the *Diamond Sutra*—a Buddhist classic—was the first book ever printed. So it is no surprise to find that the Bible provides a source for the evidence of language evolution in the West.

The example below shows some of the dramatic changes that English has undergone. It would be interesting to know what the next version of the same citation will look like. But language forecasting is even less reliable than its meteorological counterpart. We'll have to wait and see. ●

Matthew, Chapter 6, Verse 24

OLD ENGLISH

Ne mæg nān man twām hlāfordum þēowian, oððe hē sōþlice ānne hataþ, and ōðerne lufaþ; oððhe hē biþ ānum gehȳrsum, and ōðrum ungehȳrsum. Ne māgon gē Gode þēowian and woruldwelan.

MIDDLE ENGLISH

No man may serue to two lordis, forsothe ethir he shal haat the toon, and loue the tother; other he shal susteyn the toon, and dispise the tothir. Ȝe mown nat serue to God and richessis.

EARLY MODERN ENGLISH

No man can serve two masters; for either he will hate the one and loue the other, or else hee will holde to the one, and despise the other. Ye cannot serue God and Mammon.

MODERN ENGLISH

No servant can be slave to two masters; for either he will hate the first and love the second, or he will be devoted to the first and think nothing of the second. You cannot serve God and Money.

The Making

A.D. 400 500 600 700 800 900 1000 1100

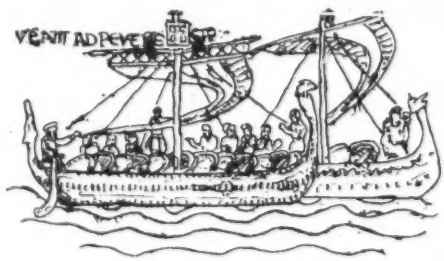
OLD ENGLISH (ca. 450–1150)

The Romans withdraw from Britain after more than 300 years, leaving the Celtic-speaking populace, the Britons, vulnerable to attack from their neighbors.

St. Augustine brings Christianity to Britain in 597, and the entire country converts within a hundred years. Monks teaching the arts, science, and math as well as religion make a huge cultural and linguistic contribution. The English learn a wealth of new ideas and adopt the Latin words with which to discuss them.

Vikings from Denmark and Norway plunder England, then settle among the English in significant numbers. Their language—also Germanic—differs from English primarily in its inflectional elements. Inflectional endings are eroded, beginning the simplification of English grammar that continues into the Middle English period. Many Scandinavian loan words have English equivalents; when both are retained with slightly different meanings (*skill* vs. *craft*; *skin* vs. *hide*), English gains depth and nuance.

At the Battle of Hastings in 1066, the Norman French defeat England. William the Conqueror rewards his Norman supporters with English lands. The upper classes speak French; writers use French or Latin. The common people continue to speak English.



Germanic tribes, most notably the Jutes, Angles, and Saxons, overrun Britain. The language of the newcomers—actually several related dialects—comes to be known as *Englisc*, after the Angles. Except for place names (*London, Thames, Avon*), Englisc adopts little from the Britons' Celtic speech.

Beowulf, an epic poem, is the most important example of Old English literature. It offers insight into the Anglo-Saxon culture, with its key values of courage and loyalty.

The Anglo-Saxon Chronicle, an ongoing history maintained by English monks, is the only one of its time to be written in a national language.

ENGLISH is a Germanic language (as you can see on the *Language Families of the World* chart), and early Old English had all the characteristics of its sister languages on the other side of the North Sea. In particular, it was a highly inflected language — relationships among words were indicated primarily by word endings. ("The king" is se cyning, but "to the king" is þǣm cyninge.) Its vocabulary was predominantly Germanic, with modest borrowings from Latin. If the first English speakers had been allowed to live undisturbed on their new island home, English today might closely resemble Dutch.

Modern English has strayed far from its beginnings, however, shaped by its encounters with the events, languages, and cultures shown on this timeline. English has lost almost all of its inflections and now depends on word order to indicate a word's grammatical function. Only half of the current lexicon is derived from Old English, although that includes the most common words (such as *mother, home, eat*). The balance of today's vocabulary is mostly Romance (French and Latin), but English has welcomed words from every continent and has the largest vocabulary of any language in the world.

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# of English

by Judith Brand

1300 1400 1500 1600 1700 1800 1900 2000

IDDLE ENGLISH (ca. 1150–1500)

MODERN ENGLISH (ca. 1500–PRESENT)

The Hundred Years' War with France makes speaking French unpopular.

The Anglo-Norman nobles are forced to choose between their lands in England and France. As those who choose England begin to use English, they donate thousands of French words to their new language. The upper classes will continue to also speak French into the 1300s, but, increasingly, it becomes a second language.

England establishes a settlement at Jamestown in 1606, and English is planted in American soil—the first of many transplants.

Samuel Johnson's masterpiece, *A Dictionary of the English Language*, sets the definitions, spelling, and pronunciation of Standard English in Britain.

Noah Webster (who will later publish the famous *American Dictionary of the English Language*) writes a spelling book that sells millions of copies and advances the standardization of American spelling and pronunciation.

The Renaissance reaches England at about the time Columbus sets sail. It's a period of great intellectual activity, with a revived interest in classical philosophy and literature that influences English writers. England becomes the foremost naval power and explores the New World, setting the stage for English to be exported around the globe.

The Black Death kills perhaps 30 percent of the population. As a result of a subsequent labor shortage, the working class—along with its language—gains importance.

Chaucer chooses to write his poetry, including his famous *Canterbury Tales*, in English, helping to reestablish English as a national and literary language. His work also evidences the wealth of Latin and French words that English has acquired by the late Middle English period.

The advancement of science and technology adds thousands of terms to the English vocabulary. Many of these words *(bacteriology, telegraph, psychoanalysis)* find their way into ordinary speech, reflecting a cultural interest in scientific progress.

The Irish novelist James Joyce conducts grand experiments with the English language including his innovative use of the stream-of-consciousness technique.

Henry IV is the first king of England since the Norman Conquest who speaks English as his native language.

William Caxton becomes England's first printer. His work helps to fix the grammar of English, and, to a lesser extent, its spelling. Printing leads to more widespread education, which, in turn, leads to a demand for more books. English becomes a mature literary language.

Shakespeare stretches the boundaries of literary English, infusing it with his huge vocabulary and adding to its flexibility.

The first edition of the *Oxford English Dictionary* is completed. Noted for its extensive etymologies, the *OED* elevates the general knowledge of the history of the language.

The King James or Authorized Version of the Bible is linguistically conservative, using a small vocabulary of primarily Old English origin to ensure that it will be understandable to all readers. Despite these constraints, it's renowned for its graceful language.

Two world wars add new vocabulary to the language, from *air raid* to *war bride*. American English achieves greater status as the United States emerges as an economic and military world power.

Pronunciation undergoes major changes as English moves into the modern period. The sounds of the long vowels change during the Great Vowel Shift, and the unstressed **-e** at the end of words is lost. (***Name***, for example, had two syllables in Chaucer's time, *'na-me*, with the ***a*** pronounced as in ***father***, and the ***e*** pronounced as the ***a*** in ***sofa***.)

At the end of the millennium, with 330 million native speakers in thirty-five countries, and about the same number of people who speak it as a second language, English is used internationally for science, technology, trade, and diplomacy. Some linguists say that English has entered a post-modern period, World English.

by Kurt Feichtmeir

Become a Word Historian

You can use an ordinary dictionary to find extraordinary histories of words. This information is packed between the two brackets [ ] right before the definition of the entry word. (For an even richer experience, explore the venerable twenty-volume *Oxford English Dictionary* with its wealth of detail.)

To Do and Notice

Look up the word *window*. You'll find that it comes from the Middle English (ME) *windowe*, which came from the Old Norse (ON) *vindauga*, which itself was formed from the two Old Norse words *vindr*, which meant "wind," and *auga*, which meant "eye." So *window* once meant "wind-eye," a poetic description appropriately suggesting a window's function of letting in both air and light.

Find the history of other words. Look up words you've been curious about, or browse through the dictionary until a word catches your interest. In the shaded line below are some words that Exploratorium staff members think have interesting histories.

Here are some helpful tips:

- The earlier forms of a word are given in italics, and their definitions, when different from the meaning of the modern English form, are given in ordinary (roman) type.
- Here are some of the dictionary's most common abbreviations:

OE—Old English, 7th to 12th centuries
ME—Middle English, 12th to 15th centuries
ON—Old Norse
OHG—Old High German
MF—Middle French
L—Latin
Gk—Greek
Skt—Sanskrit

- The abbreviation *fr* stands for "from" and indicates that a word came from an earlier form. The phrase *akin to* is used before words that are related to the original entry, although they are not its direct ancestors.
- The words *more at* direct you to another dictionary entry where related words will be found.

What's Going On?

Many English words have their origins in other languages. By finding words with similar sounds and meanings in other languages, it's often possible to trace the history of a word back through many centuries. The history of a word, called its *etymology*, is often a good clue to its most essential meaning.

You can find additional explanations about the information in an entry in the front of your dictionary. Enjoy your discoveries!

St. Jerome, patron of translators, searching for just the right word.

book poet handsome see money husband stop physics mathematical

One Poem–Three Poems

Translating something from one language to another means choosing the right ideas as well as the right words.

To Do and Notice

Notice the difference in each translation of the original poem. If you speak the language of the original poem, compare your interpretation with the translations.

What's Going On?

Translations are rarely a simple one-to-one matching of words from one language to another. These poetry examples clearly show the ambiguities in the translation process.

The very personal way a poet uses language to evoke certain feelings, tones, and rhythms makes translation partly a personal interpretation by each translator.

Poetry is powerful because of the images it creates in the reader's mind. Notice that these translations create different images by using words and structures that differ slightly.

Como Era España

Era España tirante y seca, diurno
tambor de són opaco,
llanura y nido de águilas, silencio
de azoada intemperie.

—Pablo Neruda

How Was Spain

Arid and taut–day's drumskin,
a sounding opacity: that's how Spain was:
an eyrie for eagles, flat-landed, a silence
under the throng of the weathers.

—Translated by Ben Belitt

What Spain Was Like

Spain was tense and lean, a daily
drum of opaque sound,
plainland and eagle's nest, silence
of scourged inclemency.

—Translated by Donald D. Walsh

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Fragments

by Kurt Feichtmeir

Idiomatic expressions perplex second-language learners, and native speakers often find them impossible to explain. The following examples give a glimpse into the surprising origins of some familiar English phrases.

First string, second string—Archers in medieval England are responsible for these terms, so common on athletic fields today. An archer was only as good as the bowstring on his stout, five-foot longbow, and in competitions a marksman always carried two—a first string to be used as his best, and a second string to be held in reserve, in case the other broke.

Fly off the handle—Axes in American pioneer days were frequently handmade; frontier folk whittled their own handles and attached axe heads shipped from back East. Because they were often crudely fitted to the helve, these axe heads often flew off in mid-chop, sometimes injuring the user or people nearby. The sudden flying of the head off the axe, and the trouble this caused, naturally suggested a wild outburst of anger, the loss of self-control, or the losing of one's head that the expression now describes.

Red herring—Escaping criminals in the seventeenth century would drag strong-smelling red herring (dried fish) across a trail to make pursuing bloodhounds lose the scent. This practice inspired the popular expression *to drag a red herring across the trail*, and the more recent shortened term, *red herring*, which means confusing an issue by dragging something irrelevant into the matter.

"The idioms of every language are untranslatable, for any word, from the noblest to the coarsest, is related to the unique character, beliefs, and way of life of the people who speak it."

—J. W. Goethe

Italian Journey (1768–1788)

In Old English, the humble word *the* had twelve forms. The form that was used depended on the gender, number, and case of the noun it accompanied.

Since one writing system serves all of China, it would be reasonable to assume that the Chinese all speak the same language—but that's not the case. Even though they are sometimes called Chinese dialects, there are actually eight mutually unintelligible languages spoken in mainland China, from Cantonese in the south and Wu in the Shanghai area to Mandarin in the north. Also spoken are Northern Min, Southern Min, Xiang, Kejia, and Gan.

In Russian, adjectives must agree with the nouns they modify in number, case, and gender—which creates an interesting situation when it comes to names. A Russian has three names: first, patronymic ("son of" or "daughter of"), and last. But since both patronymics and last names are considered adjectives, brothers and sisters will have different patronymic and last names because their first names have different genders.

A Finnish academic is celebrating dead languages with the help of—who else—The King. Dr. Jukka Ammondt has already produced two records of Elvis Presley songs in Latin, including such hits as "*Nunc bic aut Numquam*" ("It's Now or Never") and "*Glauci Calcei*" ("Blue Suede Shoes"). Coming next is a new record of eternal hits in Sumerian, the ancient language of Babylonia, which died out around 2,000 B.C. In some cases, the lyric translations have had to be fudged, since it's likely that neither the Romans nor the Sumerians wore blue suede shoes.

For nearly two thousand years, Hebrew was used only in worship and scholarship, much like Latin. It wasn't until the late nineteenth century that Hebrew was revived as a living language, largely through the efforts of a Lithuanian Jew, Eliezer Ben-Yehudah.

Bringing Hebrew back to life posed some difficulties. The entire Old Testament, for example, contains fewer than eight thousand different words, making modern conversation difficult. To fill in the gaps, Ben-Yehudah coined hundreds of new words himself, including words for ice cream, bicycle, and handkerchief. Other words were borrowed from Arabic, Hebrew's linguistic relative. Today, Hebrew has about four million speakers, about three million of them in Israel.

"The truth is that if borrowing foreign words could destroy a language, English would be *dead* (borrowed from Old Norse), *deceased* (from French), *defunct* (from Latin), and *kaput* (from German). When it comes to borrowing, English *excels* (from Latin), *surpasses* (from French), and *eclipses* (from Greek) any other tongue, past or present."

—Robert Claiborne

Our Marvelous Native Tongue

Credit Sir William Jones, an English judge stationed in India at the end of the eighteenth century, with the revelation that Latin, Greek, and Sanskrit, the ancient language of India, had sprung from a common source. Jones also proposed that the Celtic and Germanic languages, along with Old Persian, probably belonged to the same language family. We now know that this family, called Indo-European, encompasses most of the languages of Europe and extends into the Middle East and southwestern Asia. (See *Language Families of the World* chart.)

While others had noticed similarities among Sanskrit and various European languages, it took Jones—who made systematic comparisons of vocabulary and grammar, and who understood that languages evolve in an orderly fashion—to supply compelling evidence of the Indo-European language family and its extinct ancestor. His comparative approach became one of the key tools of subsequent linguistic analysis. ●

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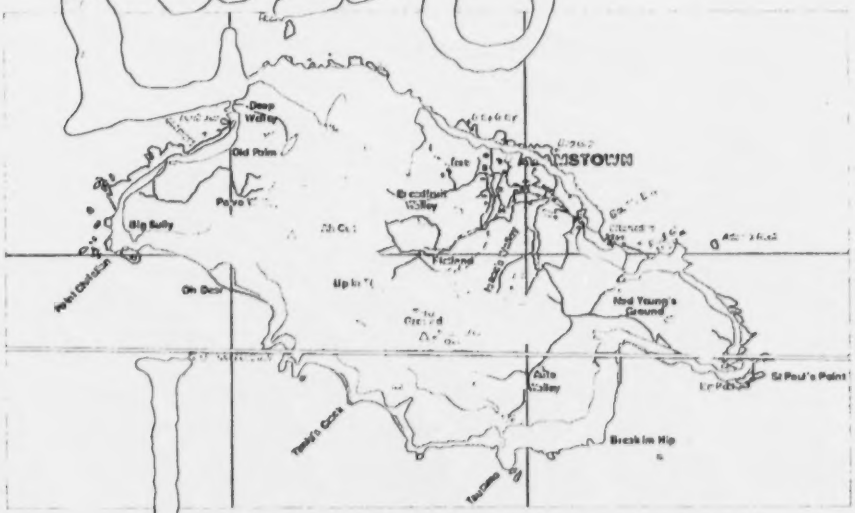
When Languages Die

by Ruth Brown



In 1789, nine British mutineers on the HMS *Bounty* abandoned their ship and took refuge with a handful of Tahitians on Pitcairn Island in the South Pacific. While romanticized in books and movies, the event was real enough and created a number of unexpected repercussions. Today, historians are beginning to recognize the changes wrought by the infamous crew, who left their mark not just in the consequences of their habits and the genetics of their descendants, but also in the influence of their language. When the sailors of the *Bounty* set up housekeeping on their new island home, they had no practical way of communicating with the Tahitians. By cobbling together bits and pieces of both languages, the English speakers and the Tahitian speakers created a simplified language, or *pidgin*, that allowed them to communicate with one another.

At first, the pidgin of Pitcairn, like all pidgin languages, encompassed a limited vocabulary and simple grammar that allowed the speakers to deal only with practical needs. Except for circumstances in which the two groups had to interact, each group maintained its own native tongue. But as the sailors and the islanders lived more closely together (the sailors ultimately took Tahitian wives and brought up families on the island), they needed to interact in a more complex manner.

Over time, the pidgin evolved, as pidgins sometimes do. At first, it served as a rudimentary contact language. Then, as life on the island stabilized, so did the language. It evolved into what's called an "expanded pidgin," with greater structure and a larger vocabulary. Ultimately, as the sailors and Tahitians had children, the pidgin changed once again, becoming a "creole"—a new first language for a new generation of speakers. Today, more than two hundred years after the infamous mutiny, English is the official language of Pitcairn (the British having colonized the area in the nineteenth century), but Pitcairnese remains the language of the people.

Watching Languages Evolve

The origins of most languages are lost in time, but where pidgins and creoles emerge, we can actually watch new languages in the making. Linguists once thought that the creations of pidgins and creoles were relatively rare. They now know that contact languages have probably always been created. Most have disappeared over time—like the pidgin used by some Native American tribes to trade with one another until the early Nineteenth Century, or Russenorsk, the simple three-hundred-word pidgin spoken by Russian merchants and Norwegian fishermen who traded in the 1800s. But like Pitcairnese, some long-term contact languages—including Hawaiian Creole, Tok Pisin (spoken in Papua New Guinea), and Bislama (on Vanuatu in the New Hebrides), have persisted for hundreds of years.

Linguists have found that pidgins and creoles are not just hodgepodges of their component languages. Instead, they have certain attributes in common and are created in certain characteristic ways. For example, they dispense with extraneous vocabulary and structure, using words and grammar in their simplest forms. Instead of adding new words for emphasis, for instance, they may double existing words (like the Pitcairnese *boney-boney*, literally, not just "thin," but "thin thin") or they may ignore changes in pronouns (as in Pitcairnese *Dem* [them] *sa gone* for "They are gone"). They may also use existing words in new or unexpected ways, such as *gras bilong chin* ("beard") and *shit bilong fire* ("ashes") in Tok Pisin.

Pidgins and creoles characteristically rely on the language of power, called the *superstrate*, for their vocabulary, and on the less powerful language, or *substrate*, for elements of structure and grammar. As a pidgin evolves into a creole, linguistic elements common to all languages become evident, such as a more evolved grammatical structure, expanded vocabulary, and idiomatic expressions. The result is a blended language that is whole and valid in its own right.

The Power of Language

While pidgins and creoles have come and gone for centuries, they were especially in evidence between the sixteenth and nineteenth centuries. During this era, pidgins were created wherever the great powers of the world conquered or enslaved, and people found themselves with no way to speak with new neighbors, rulers, or owners. Contact languages based primarily on English, Spanish, Portuguese, French, and Dutch sprang up all over the map, and many spawned pidgins and creoles that still survive today.

During this era of colonization and contact, the powers of the time knew just how potent a tool language could be. When slave traders brought their West African captives to the United States, they

made sure to separate people who spoke the same tongue. As long as the slaves could not communicate aboard ship, it was virtually impossible for them to organize any sort of resistance. Slaves who came to the United States lost not only their freedom, family, and homeland, but also their ability to communicate with one another.

In the absence of a common language, newly arrived slaves did what people have probably always done when languages collide: they created pidgins. These contact languages, known as "plantation pidgins," were extremely fluid. They changed as their speakers changed, forming and reforming to accommodate the needs and concerns of a people who were constantly coming and going.

Even after the slaves had settled in their new homes, communication was still a problem. Black men who spoke many different African tongues often labored side by side. In order to communicate among themselves, as well as with their white overseers, they relied most heavily on Plantation Pidgin. Black women, on the other hand, who more often worked in their white owners' homes, ended up learning more Standard English than the men did.

These are the circumstances and pressures responsible for both the roots of African American Vernacular English (AAVE) and the controversies that surround it. (AAVE is also known as BEV, or Black English Vernacular. At one time, it was known as Ebonics, a term that is now largely out of date.) Once thought to be a corrupt form of English—a point of view that still robs it of status and respect—AAVE is recognized today as having its roots in Plantation Creole, which was created from Standard English and the many West African languages spoken by the original slave population.

In some areas of the country, primarily in the South and in inner-city neighborhoods, echoes of Plantation Creole are still in evidence. In most places, however, it has merged with Standard English so as to become virtually indistinguishable. Africanisms—from the "all American" expression *okay* (which may be from the West African *o-ke* or *waw-ke*) to everyday words for *food* (*gumbo, yam, banana*) and music (words like *jazz*, from a West African term meaning "lively," or "energetic"; *boogie woogie*, from the word *bogi*, "to dance"; *jitterbug*, from *jitaw-baga*, literally, "frightened person")—have become so much a part of American English that we rarely consider their origins.

Linguistic Durability

Remarkably, a language that is thought to have its roots in the Plantation Creole of the early 1800s does still survive. On the Sea Islands off South Carolina today live the descendants of slaves who came to the United States during Charleston's heyday as a slave-trade city. While most of the slaves who came through Charleston were moved to other areas of the south, some stayed to work on the harbor islands. Isolated by geography and circumstance, they developed a language known as Gullah, or Sea Island Creole. In addition to its English base, linguists have traced Gullah's African influences from Fula, Mende, the Upper Guinea coast, and the Gambia River area. Today, Gullah, at nearly three-hundred years old, is still spoken by about 250,000 people, most of whom live in the coastal marshes of South Carolina, Georgia, northeastern Florida, and the adjacent Sea Islands.

Committing words to paper is an important development in imbuing any language with status and stability. Those intent on preserving the rich forms and expressions of creole languages around the world—from musicians and poets to politicians and social reformers—have begun writing in their fledgling "nation languages." Without this step in linguistic development, a language cannot serve the complex demands of a modern primary language. Until it can be set down and preserved in some way, a creole language cannot be used in any official capacity, from street signs to trade agreements.

***The Oyster Worker,* 1993 oil on canvas, 16″× 8″, by Jonathan Green, from his studies of Gullah life.**

The future of these new languages still remains to be seen. In some parts of the world, pidgins continue as convenient tools for personal contact. In other places, where creoles have evolved, the new language may carry with it all the stigmas of racism and colonialism that conspired to make it necessary in the first place. But a new language, wherever it emerges, is much more than a method of communication. It embodies the story of its speakers, their lives, attitudes, hopes, and inspirations. From South Carolina to the South Pacific, creoles remain the expressive medium of the people, reminding us that we don't find languages, we make them. ●

by Judith Brand

Which Languages Are Related?

To Do and Notice Each column in the table below represents the numbers 1 to 10 in a different language. Read the words and decide which languages you think belong to a common family. Then decide which two languages are the most closely related.

A	B	C	D	E	F
one	unus	hitotsu	heis	um	ekas
two	duo	futatsu	duo	dois	dva
three	tres	mittsu	treis	tres	trayas
four	quattuor	yottsu	tettares	quatro	catvaras
five	quinque	itsutsu	pente	cinco	panca
six	sex	muttsu	heks	seis	sat
seven	septem	nanatsu	hepta	sete	sapta
eight	octo	yattsu	okto	oito	asta
nine	novem	kokonotsu	ennea	nove	nava
ten	decem	to	deka	dez	dasa

Adapted from *The Origin of Language* by Merritt Ruhlen

What's Going On?

The languages, from left to right, are English, Latin, Japanese, Greek, Portuguese, and Sanskrit. (Japanese, Greek, and Sanskrit have been transliterated— written in the Roman alphabet.)

You probably noticed some similarities among all of the languages except Japanese. In fact, all except Japanese belong to the Indo-European family. Latin (column B) and Portuguese (column E) are the most closely related; Portuguese is one of the Romance languages that's derived from Latin.

So What?

Using the comparative method, linguists examine words from two or more languages, concentrating on words that are likely to endure over time. Numbers, personal pronouns, basic verbs such as *to be*, and basic nouns such as *milk* are the beginning of any comparative study. Linguists look for similarities—but they also look for regular differences. In the table, for example, notice that the *t* in the English "two" and "ten" corresponds to *d* in the other Indo-European languages. It turns out that this change from *d* to *t* is part of a consonant sound shift that distinguishes the Germanic languages, including English, from their Indo-European relatives.

Related Reading

Bergman, Peter M. *The Concise Dictionary of 26 Languages*. New York: Bergman Publishers, 1968. All twenty-six translations are listed together under each entry, making it possible to compare various languages at a glance.

Hendrickson, Robert. *The Facts On File Encyclopedia of Word and Phrase Origins*. New York: Facts On File, 1987. This tome is filled with hundreds of stories that reveal the contributions of the numerous languages and dialects that have enriched English. The author also provides examples of the many other ways that English words and phrases have been born: echoic words, coined words, slang, mispronunciations, words from the names of places, people, animals, occupations, leisure activities, and so on. Witty, entertaining, and informative.

Lyovin, Anatole V. *An Introduction to the Languages of the World*. New York: Oxford University Press, 1997. Written for linguistics students, but comprehensible to the interested reader who understands basic linguistics concepts, this textbook discusses methods of language classification as well as classification of writing systems. A particularly useful feature is the "language sketch," which takes an in-depth look at selected languages.

McCrum, William Cran, and Robert MacNeil. *Story of English*. New York: Penguin Books, 1987. A companion to the brilliant PBS television series, this book follows English from the cities and villages of England into every part of the globe in which it's spoken today. Entertainingly written and beautifully illustrated.

Ruhlen, Merritt. *A Guide to the World's Languages. Vol. 1: Classification*. Stanford, Calif.: Stanford University Press, © 1991. Ruhlen offers a complete classification of the world's languages, and discusses the history and present controversies regarding classification. A scholarly work that is also accessible to the general reader, this is an outstanding reference.

The Word Detective
//www.users.interport.net/~ words1/
This online version of "The Word Detective" newspaper column, written by Evan Morris, is a treasure trove for word enthusiasts. Witty stories describe the origins of words and phrases as Mr. Morris answers questions from his readers.

Credits & Acknowledgments

All illustrations by Cyan Rugsore unless otherwise noted. COVER: *La Tour de Babel* by Lan Chang-T'ung. PAGE 6: Illustration *Venit ad Pevenesae* by Agnes O'Curry. PAGE 7: *Portrait of Chaucer in a Silly Hat* by Cory Gunears. PAGE 8: Illustration *Sanctus Heironymus* by Ygor Serunca. PAGE 9: Drawings *Goethe* and *William Jones in a Second-Rate Periwig* by Ouliotta Hemogloben. Chinese calligraphy by Kuo Hsiang. PAGE 11: *The Oyster Worker*, 1993, oil on canvas, 16″ × 8″, by Jonathan Green.

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Erratum

In the *Exploring Space* magazine, we said that it takes the light from the sun about eight seconds to reach the earth. That should be eight *minutes*.

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